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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/619,199 | 07/14/2003 | Todd C. Adelman | 200310022-1 | 6368 |

7590 12/28/2006
HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

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| EXAMINER |
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GOMA, TAWFIK A

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| ART UNIT | PAPER NUMBER |
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2627

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 12/28/2006 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/619,199 | ADELMANN, TODD C. | |
| | Examiner | Art Unit | |
| | Tawfik Goma | 2627 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 October 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is in response to the amendment filed on 10/18/2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12 and 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Binnig et al (US 5835477) in view of Albrecht (US 2003/0218960).

Regarding claim 1, 14 and 19 Binnig discloses a storage device, system and method comprising: a probe (all 6 tips together form a probe, fig. 5a) having plural tips (46, fig. 5A); and a storage medium having a surface in which storage cells (33, fig. 3) are to be formed (fig. 8), the plural tips of the probe to form plural perturbations in the surface in at least one of the storage cells for representing a data bit (figs 5a, 6). Binning discloses that plural perturbations are formed in each cell by the plural tips. Binning fails to disclose wherein the plural perturbations are for representing only a single data bit. In the same field of endeavor, Albrecht discloses recording redundant data bits (fig. 4 and pars. 109 and 143). It would have been obvious to one of ordinary skill in the art to modify the recording device disclosed by Binning with the method of recording plural perturbations for representing only a single data bit as taught by Albrecht. The rationale is as follows: One of ordinary skill in the art at the time of

applicant's invention would have been motivated to provide redundant data in order to account for random disturbances (see Albrecht par. 143).

Regarding claims 2, 9 and 18, Binnig further discloses wherein the probe is adapted to form plural groups of perturbations on the surface of the storage medium to write plural data bits in respective storage cells, and the actuator is adapted to scan the probe over the plural groups of perturbations to read the data bits (fig. 6, 8 and col. 5 lines 55-60). Binning fails to disclose wherein the groups of data bits are redundant data bits. In the same field of endeavor, Albrecht discloses recording redundant data bits (fig. 4 and pars. 109 and 143). It would have been obvious to one of ordinary skill in the art to modify the recording system disclosed by Binning with the method of recording redundant data as taught by Albrecht. The rationale follows as in claim 1, 14, and 19 above.

Regarding claims 3 and 15, Binnig further discloses wherein the probe comprises a cantilever with the tips attached to and extending outwardly from the cantilever (col. 3 lines 19-27 and col. 8 lines 66 thru col. 9 line 1).

Regarding claim 4, Binnig further discloses wherein the probe is adapted to scan the perturbations of the at least one storage cell with at least one of the tips to detect a state of the data bit as being either a logical "0" or logical "1." (col. 5 lines 31-53 and col. 6 lines 58-63)

Regarding claim 5, Binnig further discloses wherein presence of at least one perturbation in a storage cell represents a first state of the data bit, and absence of perturbations in a storage cell represents a second state of the data bit, the storage device further comprising a detector to indicate that the at least one storage cell contains a data bit at the first state in response to the

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probe detecting at least one of the redundant perturbations (41, 42, 43, figs. 4, 5A and col. 8 lines 43-58) .

Regarding claim 6 and 20, Binnig further discloses a second probe, the second probe having plural tips to form plural perturbations in the surface in another storage cell to represent a second data bit (col. 13 lines 1-9).

Regarding claim 7 and 17, Binnig further discloses wherein the probe is part of an array of probes; each probe in the array of probes having plural tips (fig. 8 and col. 13 lines 1-9).

Regarding claim 8 and 21, Binnig further discloses a substrate in which the probe is formed (col. 3 lines 23-25); and an actuator to move at least one of the substrate and the storage medium to adjust relative positions of the substrate and the storage medium (col. 5 lines 55-66n and col. 6 lines 7-22).

Regarding claim 10, Binnig further discloses wherein the tips of the probe are in contact with the surface of the storage medium to form the perturbations (col. 11 lines 39-46 and claim 4).

Regarding claim 11, Binnig further discloses wherein the tips of the probe are heated to form dents in the surface, the perturbations comprising the dents (col. 4 lines 45-47).

Regarding claim 12, Binnig further discloses wherein fewer than all of the tips of the probe are in contact with the surface of the storage medium to perform a read (col. 6 lines 7-22).

Regarding claim 16, Binnig further discloses wherein the probe is adapted to read the two perturbations of the at least one storage cell with at least one of the tops to detect a state of the data bit (fig. 5). Binnig discloses wherein two of the data bits can be read by two of the tips, which reads on the claimed language.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Binnig et al (US 5835477) in view Albrecht (US 2003/0218960) as applied to claims 1-12 and 14-21 above and further in view of Miyazaki et al (US 5412597).

Regarding claim 13, Binnig further disclose wherein the probe comprises a cantilever to which the tips are attached, the cantilever being actuated to different positions to engage the fewer than all of the plural tips of the probe to contact the surface of the storage medium (col. 6 lines 27-37). Binning in view of Albrecht fail to disclose wherein the cantilever is actuated to a slanted position. In the same field of endeavor, Miyazaki discloses actuating a cantilever to a slanted position to detect the slope of the recording medium (fig. 21). It would have been obvious to one of ordinary skill in the art to modify the actuator disclosed by Binnig in view of Albrecht with the operation disclosed by Miyazaki. The rationale is as follows: One of ordinary skill in the art would have been motivated to actuate the cantilever to a slanted position in order to detect a slant of the recording medium (col. 23 lines 21-32).

Response to Arguments

Applicant's arguments with respect to claims 1, 14 and 19 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments that Albrecht does not cure the deficiencies of Binnig are not persuasive because Binnig discloses everything claimed regarding the plural tips forming plural perturbations of the device, system and method claims as applied above. Although Binnig fails to disclose wherein the plural tips are used to form plural perturbations for representing only a single data bit, Albrecht discloses recording redundant data bits on a storage medium in order to compensate for potential disturbances.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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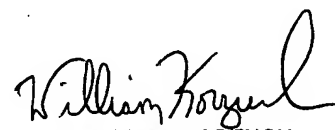
however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tawfik Goma whose telephone number is (571) 272-4206. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


T. Goma
12/21/2006


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